Eng Div Files

SAKONNET HARBOR
LITTLE COMPTON
RHODE ISLAND

SURVEY
(REVIEW OF REPORTS)

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

NOVEMBER 1969

31

SYLLABUS

The Division Engineer finds that modification of the existing Federal navigation project for Sakonnet Harbor, Rhode Island, is not warranted at this time. The existing anchorage within the harbor is exposed to wave attack from a northerly direction, causing damage to commercial and recreational craft. Since most of the damage occurs during the spring and fall the safe boating season is limited to the summer months. Only a few of the lobster fishing boats remain in the harbor to fish year round due to the exposure. Local interests desire a breakwater at the entrance to the harbor which would protect the craft and lengthen the safe boating season.

Because of the limiting size and configuration of the harbor, there is no additional area susceptible to development of additional open anchorage. The Division Engineer finds that it will be necessary for local interests to develop marina facilities within the harbor to provide space for expansion in the number of boats using the harbor and for protection of existing boats during northerly storms.

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DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

IN REPLY REFER TO

NEDED-R 6 November 1969

SUBJECT: Survey (Review of Reports) of Sakonnet Harbor, Little Compton, Rhode Island

Chief of Engineers
ATTN: ENGCW-PD

AUTHORITY

1. This report is submitted in compliance with Resolutions of the Committees on Public Works of the United States Senate and House of Representatives, adopted 29 January 1965 and 24 June 1965, respectively.

> "RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, That the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act approved June 13, 1902, be, and is hereby requested to review the report of the Chief of Engineers on Sakonnet Harbor, Rhode Island, published as House Document Numbered 436, 82nd Congress, and other pertinent reports, with a view to determining whether any modifications of the recommendations contained therein are advisable at the present time."

> "Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Sakonnet Harbor, Rhode Island, published as House Document Numbered 436, 82nd Congress, and other pertinent reports with a view to determining whether any modifications of the recommendations contained therein are advisable at the present time."

2. The Chief of Engineers assigned the study to the Division Engineer, New England Division.

PURPOSE AND EXTENT OF STUDY

3. This study considered what modification of the existing Federal navigation project for Sakonnet Harbor, Little Compton, Rhode Island, would be required to meet the needs and desires of local interests for reduction of wave action by construction of a breakwater at the entrance to the harbor. A detailed hydrographic survey was made to determine the most practicable location of a breakwater. Engineering and economic studies of various possible breakwater layouts were also made. A public hearing was held at Little Compton on 28 February 1967. Information presented at the hearing is described under "IMPROVEMENT DESIRED". The information obtained from the public hearing has been further supplemented by field investigations and discussions with local interests. Available maps, past records, and other data pertaining to the harbor have been studied.

DESCRIPTION

4. Sakonnet Harbor, originally known as Church Cove, is located at the eastern side of the entrance to the Sakonnet River, about three-quarters of a mile north of Sakonnet Point, in the southwestern part of the Town of Little Compton. By water, the harbor is 15 miles east of Newport Harbor and 28 miles southwest of New Bedford Harbor.

5. The harbor is a shallow, rockbound, approximately rectangular cove about 900 feet wide and 1,200 feet long, open to the north, protected on the east and south by the mainland, and on the west by a rocky point which has been artifically extended northerly by a breakwater. In the inner half of the harbor the depths vary from 2 to 8 feet, and in the outer and less protected half of the harbor the depths vary from 8 to 20 feet.

6. Sakonnet Harbor is directly exposed to the north and partially protected by the western breakwater from west and northwest winds. Dominant winds in the area blow from the northwest, and the greatest average velocities are from the west, northwest, and northeast. In addition, strong southerly winds generate waves which roll up the Sakonnet River. These waves are refracted in a southeasterly direction and enter the harbor anchorage.

7. The mean tidal range is 3. 3 feet and the spring range is 4. 1 feet. Ranges of 6 feet and higher have been observed at times as the result of the combined effects of wind and tide. During the hurricane of 21 September 1938, high water on the bluff at Sakonnet Point was 19. 8 feet above mean low water. The locality is shown on United States Coast and Geodetic Survey Charts Nos. 353 and 1210 and on the map accompanying this report.

TRIBUTARY AREA

8. The area tributary to Sakonnet Harbor is limited in extent. The business and residential center of Little Compton is located about 4 miles northeast of the harbor. The total population of Little Compton in 1960 was 1, 702, an increase of 9. 5 percent over 1950. This population is supplemented by a considerable number of summer residents who reside along the eastern shore of the harbor and other outlying areas. There are no industries, large business, or trade facilities in the area, the principal occupations being fishing, lobstering, farming, and catering to summer tourists. The nearest railroad facilities are at Tiverton, about 14. 5 miles northerly. A State highway connects the harbor with a network of highways to the north and east. No water or bus transportation lines serve the harbor area.

BRIDGES

9. There are no bridges crossing the locality under consideration.

PRIOR REPORTS

10. Sakonnet Harbor has been the subject of several previous reports dating back to 1828. Pertinent data with reference to the latest reports are embodied in the following tabulation.

Published In	Nature of Report	Work Considered and Recommendation
Unpublished report of Chief of Engineers, 1941	Preliminary Examination	A desired plan comprising (a) a 200-foot long extension to existing breakwater; (b) a 300-foot detached breakwater; (c) a 6-foot anchorage; (d) removal of ledge rock to 8 feet; and (e) removal of

Published In	Nature of Report	Work Considered and Recommendation
		isolated rocks to 8 feet, and an alternate plan comprising a 400-foot detached breakwater and items (c) and (e) above. Unfavorable.
H. D. No. 436, 82d Session 1952	Survey	(a) a 400-foot extension of west breakwater, (b) dredging anchorage to 8 feet. Favorable.

EXISTING CORPS OF ENGINEERS PROJECTS

11. The existing project was adopted in 1836, and modified in 1899, 1907, and 3 September 1954. The project provides for a breakwater about 400 feet long in a northerly direction and a 400-foot extension in a northeasterly direction, top width of 15 feet at an elevation of 8 feet above mean low water, with side slopes of 1 on 1 on the harbor side and 1 on 2 on the seaward side; removal of rock nearest the breakwater to a depth of 8 feet; dredging the harbor to a depth of 8 feet, to provide an anchorage area. Total anchorage area available is about 13 acres. The Federal cost for new work under the existing project was $588, 478, and for maintenance $24, 421. The average annual maintenance cost during the 5-year period 1957-1962 was $4, 561.

LOCAL COOPERATION ON EXISTING AND PRIOR PROJECTS

12. The only condition of local cooperation ever prescribed for Sakonnet Harbor was contained in the 1952 River and Harbor Act which authorized the 400-foot breakwater extension and dredging of the harbor to a depth of 8 feet. Local cooperation consisted of an $18, 700 cash contribution toward construction of the project. Total actual costs for requirements of local cooperation under the terms of the project authorization, including required non-Federal contribution, amounted to $21, 928.

OTHER IMPROVEMENTS

13. No improvements for general navigation, other than construction of wharves by local interests, have been made in Sakonnet Harbor.

TERMINAL AND TRANSFER FACILITIES

14. There are four wharves in the harbor, none of which is publicly owned. The Sakonnet Yacht Club pier on the east side of the harbor projects about 300 feet from the shore and has a float which makes it readily accessible to small craft. The three other wharves are located on the west side of the harbor near the breakwater. These wharves, for all practical purposes, form one structure about 150 feet wide with two piers 30 and 40 feet wide, projecting 35 and 70 feet into the harbor. The piers are open to the public free of charge for taking on supplies, gasoline, and water. These piers are in constant use by local and transient vessels. The highway which passes along the head of the harbor terminating in a parking lot at the inshore end of the breakwater provides access to the wharves.

15. There are no boat building, repair yards, or marine railways at the harbor. There is one open air boat storage yard at the head of the harbor. This portion of the harbor is undeveloped because the access road to the existing wharves borders the shoreline.

IMPROVEMENTS DESIRED

16. A public hearing was held in Little Compton, Rhode Island, on 28 February 1967 to determine the nature and extent of improvements desired by local interests. The hearing was attended by 82 people including representatives of the State and local governments, fishing industry, charter boat operators, yacht club members, and other local residents interested in harbor improvement.

17. Local interests represented by the Sakonnet Harbor Commission, desire construction of a stone breakwater at the northerly side of the entrance to the harbor leaving a 100 to 150-foot wide gap between the end of the existing breakwater and extending in a northeasterly direction to a point 300 feet short of the mainland on the easterly side of the harbor.

18. In 1962 the Rhode Island State Legislature, by resolutions, directed the State Division of Harbors and Rivers to make a report on the feasibility and cost of constructing a breakwater to provide protection from northerly storms. The report submitted in response

to the Legislative resolutions included a plan for the construction of a stone breakwater, 750 feet long, with its top 15 feet wide and at elevation 8 feet above mean low water, with the seaward side sloping one vertical to two horizontal and the harbor side one on one. The total estimated cost for construction was $650, 000. The report recommended that the Federal Government be requested to review the survey reports on Sakonnet Harbor to determine if breakwater protection would be economically justified.

EXISTING AND PROSPECTIVE COMMERCE

19. The commerce in Sakonnet Harbor consists entirely of fish and shellfish products landed at two commercial wharves and shipped by truck to inland markets. Twenty-two trap fishing boats and 31 lobster boats work for three fishing companies making an annual catch of approximately 6, 000, 000 pounds having a gross value of $600, 000. The 31 lobster boats represent eight full-time and 23 part-time fishermen. Approximately 127, 000 pounds of lobsters are landed annually with a gross value of $101, 000. The U. S. Fish & Wildlife Service reports that improvement of the harbor by additional breakwater protection would not materially increase the fish catch. There would be an increase in lobster fishing during the winter months if a breakwater were provided. The increased catch would amount to about 15 percent of the present landings. The establishment of any new fishing company in the harbor upon improvement does not appear likely due to lack of onshore area for establishment of necessary facilities for processing.

VESSEL TRAFFIC

20. Records have not been kept of the vessel traffic in Sakonnet Harbor. Commercial fishing vessels currently using the harbor are listed in the following table.

Type of Craft	Number	Length (in feet)	Draft (in feet)	Present Value
		Locally Based		
Trap carriers	22	20-53	2-8	$ 250, 000
Lobster boats	31	12-40	2-4	91, 750
Charter boats	3	25-32	2-4	38, 000
Gill netter	1	26	3	5, 000
Swordfish	3	28-36	3-4	42, 000

Type of Craft	Number	Length (in feet)	Draft (in feet)
		Transient Craft	
Trawlers	12	30-65	3-8
Seiners	1	64.5	8
Lobster Boats	2	28-40	3-4

21. The recreational fleet based in the harbor consists of 275 boats ranging in length from 8 to 60 feet. About 1,135 transient pleasure craft annually visit the harbor. These are generally less than 60 feet in length and draw from 3 to 8 feet.

DIFFICULTIES ATTENDING NAVIGATION

22. The harbor is directly exposed to the north, and the existing breakwater does not afford protection from north and northwest winds. During the boating season the anchorage is completely occupied by the existing locally based and transient recreational fleets. There is no additional area within the confines of the cove which could be developed into an open anchorage. Future expansion of the recreational fleet would depend entirely upon development of marina facilities. However, no further development of this type is contemplated under the existing exposed conditions which limit recreational use of the harbor to a short season. Strong winds from the north and northwest occur mostly during early spring and fall, thus confining the safe boating season to some extent. Because of the relatively mild weather conditions experienced in the Narragansett Bay area owners of recreational craft located in other harbors throughout the area are able to enjoy a boating season of approximately 140 days compared to 90 days at Sakonnet. To emphasize the severity of the problem, the marina presently located on the southwest side of the harbor has a clause in its berth rental agreement that boats must be out of their slips by September 15 and that boat owners will be responsible for damage to the docks caused by their boats if they fail to remove them.

23. Only a few lobster fishermen operate out of the harbor year-round. The majority relocate to more sheltered areas or pull their boats out for the duration of the winter. Commercial longline fishing vessels use the facilities throughout the year, weather permitting. If fishing boats return to port under adverse conditions, they usually move up river to more sheltered locations at Tiverton and Mt. Hope Bay to unload their catch.

WATER POWER AND OTHER SPECIAL SUBJECTS

24. The entire waterway is tidal. There are no problems of flood control, water power, or pollution pertinent to the report. The U. S. Fish & Wildlife Service does not anticipate any adverse effect on fish and wildlife resources. Its report is included in APPENDIX A of this report.

PROJECT FORMULATION

25. Several plans of improvement were considered. The first plan involved extension of the existing west breakwater in a northeasterly direction which would place the harbor entrance closer to the mainland. The study revealed that damaging waves from the northwest would still enter the harbor with a minimum navigation opening between the end of the breakwater extension and the mainland shore. Even if sufficient protection could have been attained with this extension, relocation of the entrance closer to the rocky shore would create a difficult navigation passage under adverse weather conditions.

26. Several alignments and locations for a breakwater extending from the east shore were studied with consideration given to the various factors for which improvement is desired. These factors include: the necessity for protected anchorage for the commercial and recreational fleets, the direction from which winds of high velocity most frequently occur, the fetch of open water over which these winds would generate maximum wave heights, and the most economical structure that would provide the desired protection. After due consideration of various locations, a plan was chosen which represented the location, orientation, and length of a breakwater structure that would give maximum economical protection to the harbor anchorage.

PLAN OF IMPROVEMENT

27. The selected plan provides for a stone breakwater about 850 feet long extending westward from a small point of land at the east side of the entrance. The width of the navigation opening between this structure and the existing west breakwater would be a minimum of 400 feet. This opening is sufficient for navigation of all vessels that are expected to use the existing harbor facilities. The design height of the breakwater was fixed at 8. 0 feet, based on a maximum tide of 4 feet, a design wave of 3. 0 feet, fetch length of 6 miles and fetch width of 2 miles. Primarily, the breakwater would provide protection from winds emanating from northerly directions. These winds generate the

maximum wave heights in the harbor. Winds from the southwesterly direction blowing over a 12-mile fetch can generate 6-foot waves at the entrance but these are effectively diffracted by the existing west breakwater from entering the harbor anchorage. The end of the proposed breakwater has been designed to withstand damage from the 6-foot waves.

28. Additional breakwater construction at Sakonnet Harbor would not provide any additional safe anchorage area because of the size and configuration of the harbor.

SHORELINE CHANGES

29. The shoreline along the eastern side of the harbor consists of ledge rock with small pockets of shingle beach consisting of large cobbles in two or three locations. Construction of a breakwater would have no adverse effect on adjacent shorelines.

REQUIRED AIDS TO NAVIGATION

30. The U. S. Coast Guard was not consulted on needs for additional aids to navigation. Based on existing structures of similar types, a single pole light would be required on the end of the breakwater. It is estimated that this structure would cost an estimated $15, 000 and $300 for annual maintenance.

ESTIMATE OF FIRST COST

31. An estimate of first cost has been prepared for the selected plan of improvement. The breakwater would be a rubble mound structure containing a sand tight core, 850 feet long. Based on a significant wave height of 3 feet, the typical section of the breakwater should have a top elevation of 8 feet above mean low water; side slopes of 1 on 2 on the outer slope and 1 on 1 on the harbor side; with a 10-foot top width. The quantities of stone include allowances for settlement. Cost estimates are based on prices prevailing in March 1969. The U. S. Coast Guard would provide the necessary additional navigation aids.

32. The detailed estimates of cost are as follows:

PROJECT COST ESTIMATE

10. 850-foot Stone Breakwater	
58, 000 tons @ $15. 00/ton	$ 870, 000
Contingencies	130, 000
	$1, 000, 000
30. Engineering and Design	50, 000
31. Supervision and Administration	70, 000
TOTAL PROJECT CONSTRUCTION COST (1)	$1, 120, 000
Aids to Navigation (Corps estimate)	15, 000
TOTAL PROJECT COST	$1, 135, 000

(1) Excludes $30, 000 study costs

ESTIMATES OF ANNUAL CHARGES

33. The estimated annual charges for the considered improvement are based on an anticipated project life of 50 years, at an interest rate of 4-7/8 percent. Average annual maintenance charges are based on past experience with other breakwaters of similar size and location. It is estimated that maintenance work would be needed every 10 years to restore the breakwater. The maintenance would involve replacing an average of 1, 000 tons of stone annually. The computations of annual charges are detailed below:

Interest and Amortization	
(0. 05372 x $1, 120, 000)	$ 60, 200
Maintenance	
Breakwater 1, 000 tons @ $17. 00/ton	17, 000
Aids to Navigation (Corps estimate)	300
TOTAL ANNUAL CHARGES	$ 77, 500

ESTIMATE OF BENEFITS

34. Additional breakwater protection at Sakonnet Harbor would provide a safe anchorage for both commercial and recreational craft. At the present time there is ample breakwater protection from westerly winds and most storms in the northwesterly quadrant. However, the harbor is completely exposed to the north; no protection presently exists to protect boats and shore installations in the harbor against waves generated by northerly winds which funnel down the Sakonnet River and into the harbor.

35. The total area available for anchorage in Sakonnet Harbor, with depths in excess of 6 feet, amounts to approximately 13 acres. Three quarters of this area is completely or partially exposed to northerly wave attack. The westerly 3 acres adjacent to the commercial waterfront is well protected by the existing breakwater. It is in this portion that the 22 trap fishing boats and 31 lobster boats moor to escape wave damage. The U. S. Fish and Wildlife Service has stated that they do not expect any important change in trap fish landings if a breakwater were constructed. The trap fishery is most active during the spring and summer months. During the fall the fish caught by these vessels move offshore and to the south out of reach of the locally based fleet. During the fall and winter months the three trap fishing companies buy fish from draggers that unload at Newport. The fish are trucked to the processing plants. These fish would be landed at Sakonnet Harbor during this period if the harbor were improved. However, improvement would not result in any increased fish landings.

36. Construction of a breakwater would benefit the lobster fishery by allowing more fishing time during the stormy fall and winter months, since more lobstermen would keep their boats in the harbor all winter and do additional part-time fishing through the winter. This would result in an increased annual catch of about 15 percent or 19,000 pounds having a gross value of $15,200. With additional operating costs of 60 percent of the value of the catch, the net benefit is estimated at $6,100.

37. The locally based recreational fleet has grown from 81 boats in 1952 to a total of 275 craft in 1967. One hundred of these are rowboats or tenders which would not benefit to any extent from breakwater protection. There are 25 berthing slips available in the partly exposed marina at the southwest corner of the harbor. If the marina

berths were filled, the open anchorage available to recreational craft would contain 15 boats per acre, allowing room for transient craft. In order to minimize damage to boats moored in open anchorage at this location an analysis was made of the number of boats which could be moored in overlapping circles taking into consideration such factors as length of boat, storm surge, tidal range, wind and wave action, and currents. Results of the analysis indicate that the saturation point is reached at 10 boats per acre. Thus the harbor is overcrowded by 40 percent or 69 boats.

38. Due to the inadequacy of the harbor the recreational fleet experiences damage from bumping together, breaking loose, and drifting ashore. Two power boats and several sailboats have gone ashore recently in rough weather. It is estimated that damage amounts to about $100 per boat per year, of which 75 percent could be attributed to wave action, with the remainder caused by accompanying wind. The total annual damage which could be eliminated by a breakwater amounts to $12,500.

39. The recreational boating season in Sakonnet Harbor is reported to average about 90 days annually or from June to September. This season is about 40 days shorter than that experienced at other harbors in Narragansett Bay. The chief reason for the abbreviated season is attributed to lack of protected anchorage. Damaging wave action occurs in the harbor during the spring and fall months from northwest winds following passage of severe equinoctial coastal storms and during the summer following passage of cold fronts accompanied by thunder showers. To avoid as much damage as possible, the majority of the local fleet is launched late in the spring and hauled for winter storage by Labor Day. Since 80 percent of the fleet is owned by summer residents it is not expected that with protection the average boating season would extend beyond an additional 30 days.

40. Benefits resulting from increased use of the harbor by lengthening the boating season have been evaluated as the gain in annual for-hire return which owners of the boats could enjoy, if the breakwater were constructed. The value of this gain is expressed as a percentage of the current value of the fleet. The gain represents the difference between present use and the increased use that would be made possible as a result of the improvement. Ideal return varies according to the size and type of boat. For this report, the ideal return ranged from 14 percent for outboards to 7 percent for the larger auxiliary sailboats. In determining the value of the ideal return, consideration was given to the lack of protected anchorage counterweighed by the fact that there is insufficient room for the existing local and transient fleets. Benefits from increased use of the locally based fleet are estimated to total $13,400 (see Table I).

TABLE I - BENEFITS TO RECREATIONAL BOATING

Existing Locally Based Fleet

SAKONNET HARBOR, RHODE ISLAND — 120 DAY SEASON

TYPE OF CRAFT	LENGTH (feet)	No. of BOATS	DEPRECIATED VALUE AVERAGE $	DEPRECIATED VALUE TOTAL $	PERCENT RETURN Ideal	% of Ideal Pres.	% of Ideal Fut.	Gain	VALUE ON CRUISE $	ON CRUISE Avg. Days	ON CRUISE % of Season	ON CRUISE Value $
RECREATIONAL FLEET												
Outboards	15-20	50	1,400	70,000	14	70	90	2.8	1,960	-	-	-
Sterndrive	15-20	6	2,600	15,600	12	70	90	2.4	374	-	-	-
	21-35	6	4,300	25,800	11	70	90	2.2	566	-	-	-
Cruisers	21-30	35	6,500	227,500	9	70	90	1.8	4,100	12	10	410
	31-40	10	16,000	160,000	8	70	90	1.6	2,560	16	13	333
Aux. Sail	21-30	10	4,900	49,000	8	70	90	1.6	784	6	5	40
	31-40	8	14,400	115,200	8	70	90	1.6	1,860	16	13	242
	41-up	2	30,000	60,000	7	70	90	1.4	840	20	17	143
Sailboats	16-20	40	1,200	48,000	12	70	90	2.4	1,150	-	-	-
	21-25	8	2,100	16,800	12	70	90	2.4	404	6	5	20
TOTALS		175		$787,900					$14,598			$1,188

TOTAL BENEFIT = $14,598 - 1,188 = $13,410

SAY $13,400

41. The existing transient recreational fleet consisting of about 1,135 boats visits Sakonnet Harbor for an average stay of 2 days per boat. For a 120-day boating season this would amount to an estimated total of 2,270 boat days or the equivalent of 19 permanently based boats. Benefits from this source are estimated to total $3,200 (see Table II).

42. As stated previously, use of the harbor is hampered by lack of anchorage space. Adequate breakwater protection would not provide any additional usable area. The only way future expansion for recreational boating could be attained is through development of marinas. Even this method of improvement appears impracticable because the size, configuration, and amount of ledge rock that would be encountered precludes development of extensive berthing facilities. Therefore, no consideration has been given to benefits from adding new boats to the fleet.

43. The evaluated benefits for breakwater improvement at Sakonnet Harbor are summarized below:

SUMMARY OF ANNUAL BENEFITS

	Number of Boats	General	Local	Total
Increased Lobster Catch	-	$6,100	-	$6,100
Reduction in Boat Damage	-	6,250	$6,250	12,500
Increased Boat Use:				
Locally based Fleet	175	6,700	6,700	13,400
Transient Fleet	19	1,600	1,600	3,200
TOTALS	194	$20,650	$14,550	$35,200

COMPARISON OF BENEFITS AND COSTS

44. A comparison of the estimated benefits of $35,200 and the annual charges of $77,500 results in a benefit-cost ratio of 0.45 to 1.0.

TABLE II - BENEFITS TO RECREATIONAL BOATING

Existing Transient Fleet

SAKONNET HARBOR, RHODE ISLAND — 120 DAY SEASON

TYPE OF CRAFT	LENGTH (feet)	No. of BOATS	DEPRECIATED VALUE AVERAGE $	DEPRECIATED VALUE TOTAL $	PERCENT RETURN Ideal	% of Ideal Pres.	% of Ideal Fut.	Gain	VALUE $
RECREATIONAL FLEET									
Sterndrive	21-25	6	4,500	27,000	11	70	90	2.2	594
Cruisers	21-30	1	6,500	6,500	9	70	90	1.8	117
	31-40	5	16,000	80,000	8	70	90	1.6	1,280
Aux. Sail	21-30	2	4,900	9,800	8	70	90	2.4	235
	31-40	2	14,400	28,800	8	70	90	1.6	460
	41-up	1	30,000	30,000	7	70	90	1.4	420
Sailboats	16-20	2	1,200	2,400	12	70	90	2.4	58
TOTALS		19		$183,300					$3,164

TOTAL BENEFIT = $3,200

DISCUSSION

45. Sakonnet Harbor is located about three quarters of a mile north of Sakonnet Point in the southwestern part of the Town of Little Compton, Rhode Island. The economy of the area is based on the fishing industry, farming, and catering to summer vacationists. There is a fleet of 22 trap fishing vessels and 31 lobster fishing boats that use the harbor as a home port. The harbor is also used during the summer months by a considerable number of recreational craft.

46. The configuration of Sakonnet River immediately upstream of the harbor is such that the east shore extends almost due north for about 1.5 miles, then swings northwest to Church Point which is about 2,000 feet west of the harbor. Thus, the harbor is exposed to winds from the west and northwest over a 1.5 mile fetch. Inspection of the wind diagram for Block Island, which is indicative of the winds affecting Sakonnet, shows that the dominant winds blow from the northwest and the greatest average velocities are from the west, northwest, and northeast. Only a small number of wind storms are from the north. It is evident that the northwest exposure creates the wave action problems experienced by local interests in the harbor.

47. Consideration was given to extending the existing jetty on the west side of the harbor in a northeasterly direction toward the mainland shore. Studies indicate that a reduction in wave action within the harbor would not be reduced significantly to warrant the extension and the approach to the entrance would be difficult to navigate, especially if a strong west or southwest wind were blowing.

48. The alternative construction of a breakwater westerly from the eastern shore, near the entrance to the harbor, was considered to be a feasible solution to wave reduction. This breakwater would provide a minimum navigation opening of 400 feet in width. However, cost of construction for the breakwater is not economically justified.

49. The 22 trap fishing vessels which supply the three fish processing plants located in the shelter of the existing breakwater would not materially benefit from additional breakwater protection. These vessels operate out of the harbor from early spring until fall, at which time the fish supply moves offshore out of reach of this locally based fleet. During the winter months the companies receive fish from Newport, Rhode Island, by truck. Only 8 of the 31

lobster fishermen operate year round because of the rough weather conditions in winter in Narragansett Bay. Although a breakwater would extend their fishing time the increased catch would not be significant. Sakonnet Harbor is limited by its size and shape to an area of only 13 acres for open anchorage use by both commercial and recreational craft. Ten acres of this area are used by the existing locally based and transient recreational fleets totaling 169 boats, resulting in a severely overcrowded condition. Since no additional area is available for open anchorage improvement the only solution to overcrowding is the development of public or privately owned marinas in the harbor by local interests to relieve the congestion and provide space for additional craft.

CONCLUSIONS

50. The Division Engineer finds that although there is need for additional breakwater protection at Sakonnet Harbor, the damages experienced by existing boats using the harbor and increased use of the present facilities resulting from provision of a breakwater are insufficient to warrant construction of a breakwater at this time. He further finds that because of the limiting size and configuration of the harbor, there is no additional area susceptible to development of open anchorage and that further growth in the number of boats based in the waterway can be encouraged by the construction of marina facilities within the harbor by local interests.

RECOMMENDATION

51. The Division Engineer recommends no modification of the existing Federal navigation project at Sakonnet Harbor, Rhode Island, at this time.

4 Incl
1. Map - Plate No. 1
2. Appendix A - U. S. F. &W. Report
3. Appendix B - Correspondence
4. Info. - Sen. Res. 148

FRANK P. BANE
Colonel, Corps of Engineers
Division Engineer

CORPS OF ENGINEERS

U. S. ARMY

SAKONNET HARBOR
LITTLE COMPTON, RHODE ISLAND
GENERAL MAP

SCALE IN FEET

0 100 200 300

DESIRED IMPROVEMENT
NOT RECOMMENDED
BREAKWATER-850 FT. LONG

EXISTING FEDERAL PROJECT
ANCHORAGE-13 ACRES, 8 FEET DEEP
BREAKWATER 800 FEET LONG

L I T T L E C O M P T O N

S A K O N N E T H A R B O R

S A K O N N E T R I V E R

N

N140,000

N139,000

E584,000

E585,000

E583,000

MINNESOTA RD.

NEW YORK RD.

TO LITTLE COMPTON CENTER

MASSACHUSETTS RD.

EAST BASE (1939)

GOLF (1968)

LEDGE (1939)

LEDGE

SAKONNET YACHT CLUB

DOCK (1939)

PENNSYLVANIA RD.

LAUNCHING RAMP

MARSH

WELL (1939)

MARYLAND RD.

RHODE ISLAND RD.

SAKONNET MARINA

RHODE ISLAND RD.

COMMERCIAL WHARVES

PARKING AREA

BLOCK (1957)

BREAKWATER (1939)

EXISTING BREAKWATER

Flood

Ebb

LOCATION MAP
SCALE IN MILES

CANADA
MAINE
BANGOR
AUGUSTA
NEW HAMPSHIRE
PORTLAND
CONCORD
PORTSMOUTH
VT.
ATLANTIC OCEAN
BOSTON
MASSACHUSETTS
HARTFORD
PROV.
R.I.
CONN
SAKONNET HARBOR

VICINITY MAP
SCALE IN FEET
2000 0 2000 4000 8000

AQUIDNECK ISLAND
LITTLE COMPTON
CHURCH POINT
FLINT POINT
SACHUEST BAY
SACHUEST
SACHUEST POINT
SAKONNET RIVER
CHURCH COVE
SAKONNET HARBOR
BREAKWATER POINT
SAKONNET
WARREN POINT
SAKONNET POINT
WEST IS.
EAST IS.

WIND DIAGRAM FOR BLOCK ISLAND, R. I.

LEGEND

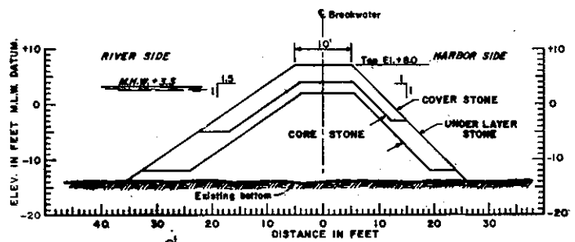
AVERAGE VELOCITY IN M.P.H.

DURATION IN PERCENT OF TIME

STORM WINDS IN M.P.H.

10 DAYS

TYPICAL SECTION
DESIRED BREAKWATER



NOTES:

Soundings are in feet and tenths and are referred to the plane of Mean Low Water.

Hydrography from survey of Feb. 26, 1968 by H.A. Fishleck, survey of May 28, 1965 by L. White and previous surveys.

Topography from survey of Jan. 19, 1968 and previous surveys.

T.B.M. △ WELL (1939) 1/2" drill hole in concrete tank. Elev. above M.L.W. = 10.12 feet.

Field books R.B.H. 493 & 1537.

REVISION	DATE	DESCRIPTION	BY

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS.

M. R. H.H.G.	E. W. A.D.C.	CK. BY

DIVISION ENGINEER
PROJECT ENGINEER
CHIEF, COASTAL ENGR. BR.
APPROVED
DATE JUNE 1969

TO ACCOMPANY SURVEY REPORT DATED: NOVEMBER 1965

DRAWING NUMBER
Sak. 31

SCALE As shown

SHEET 1 OF 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
U. S. POST OFFICE AND COURTHOUSE
BOSTON, MASSACHUSETTS 02109

May 15, 1969

Division Engineer
New England Division
U. S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Sir:

This is our conservation and development report on the study of navigational improvements for Sakonnet Harbor (Newport County), Rhode Island. The study was authorized by two identical resolutions adopted on January 29, 1965, by the Senate and House Committees on Public Works, respectively. This report was prepared under authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-666 inc.), in cooperation with the Rhode Island Division of Conservation, as indicated by their letter dated May 9, 1969. It has also been coordinated with and represents the views of the Bureau of Commercial Fisheries.

We understand that you are considering the construction of a breakwater about 850 feet long on the east side of the harbor. There will be a 400-foot navigational opening between this breakwater and the existing breakwater on the west side of the harbor. The new breakwater will afford protection to about 3/4 of the existing anchorage.

An active commercial fishing fleet operates out of Sakonnet. Twenty-two trap fishing boats and 31 lobster boats make up the fleet. The trap fishing boats work for three fishing companies that represent an average annual catch of approximately 6,000,000 pounds (scup is the principal species handled) having a gross value of $600,000. The 31 lobster boats represent eight full-time and 23 part-time fishermen. Approximately 127,000 pounds of lobster are landed annually having a gross value of about $101,000. It is expected that under without-the-project conditions there will be no important change from present conditions.

When we submitted our 1967 report two trap-fishing companies were operating out of Sakonnet. Subsequent establishment of the third company is reflected in the figures given above.

The trap fishery is usually active during the spring and summer months. During the fall months scup schools move offshore and to the south out of the reach of the Sakonnet fishing fleet. Rough weather during the fall and winter months makes it impossible for individual Sakonnet fishermen to do fishing of any kind for many days.

During the fall and winter months the trap fishing companies obtain fish from draggers that unload at Newport. The fish are then trucked to the trap fishing facilities for processing. These fish would be landed at Sakonnet Harbor during this period if the harbor were improved. Consequently, harbor improvement at Sakonnet will not result in any additional pounds of finfish being harvested.

Sheltering the harbor by the construction of a breakwater will materially benefit the lobster fishery by more fishing during the difficult fall and winter months, since more lobstermen will keep their boats in the harbor all winter and do some fishing throughout the winter. This will result in an increased annual catch of about 15 percent or 19,000 pounds having a gross value of $15,000.

Breakwaters provide fishing opportunities for sport fishermen and sightseeing opportunities for others when free access and safety features on the breakwaters are included. The existing west breakwater is very popular with anglers and is often overcrowded.

Construction of the new breakwater is not expected to make an important contribution to sport-fishing opportunities because the structure will be land-tied in a residential area, thus discouraging access by the general public. If the project is authorized we would like to be advised in sufficient time during the advanced planning and design stage to review and re-evaluate the breakwater to see if changed conditions will allow substantial sport-fishing use of the breakwater.

If there are any changes in specific portions of the project plans please advise us so that we can determine whether additional fish and wildlife studies are needed.

We appreciate the opportunity to report on your present project plans.

Sincerely yours,

Richard E. Griffith

Regional Director

APPENDIX B

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF NATURAL RESOURCES
VETERANS' MEMORIAL BUILDING, PROVIDENCE, R. I. 02903

John L. Rego
DIRECTOR

DIVISIONS OF
PARKS AND RECREATION
CONSERVATION
AGRICULTURE
HARBORS AND RIVERS
PLANNING AND DEVELOPMENT
ENFORCEMENT

DIVISION OF HARBORS & RIVERS
106 VETERANS' MEMORIAL BLDG.,
PROVIDENCE, R. I. 02903

August 18, 1969

Mr. John Wm. Leslie
Chief, Engineering Division
Department of the Army
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts

NEDED-R
Sakonnet Harbor, Rhode Island

Dear Mr. Leslie:

Thank you for your letter of July 25, 1969 and accompanying plan of Sakonnet Harbor, Rhode Island, advising this office of the results of the navigation survey study made by the Corps of Engineers, New England Division, to determine the advisability of constructing a breakwater to afford protection to the harbor from northerly storms.

It is noted that such breakwater protection cannot be economically justified at this time because of inherent harbor limitations and restrictions, and that only the construction of sufficient boat-berthing facilities along the shore to provide for the accommodation of more boats in the harbor might make additional breakwater protection feasible.

This office is aware of the very unsatisfactory conditions in the harbor so long as it remains exposed to northerly storms. It is sincerely hoped, therefore, that marinas and similar structures as may be necessary to attract more boats to the harbor be developed as soon as possible to make Sakonnet Harbor a better boat haven in all weather conditions.

Very truly yours,

H. Isé, Chief
Division of Harbors & Rivers

HI:mp

SAKONNET HARBOR, LITTLE COMPTON, RHODE ISLAND

Information called for by Senate Resolution 148, 85th Congress,
Adopted 28 January 1958

1. Navigation Problem. Sakonnet Harbor is located on the eastern side of the entrance to the Sakonnet River, in the southwestern part of the Town of Little Compton. The harbor is 15 miles east of Newport, Rhode Island, and 28 miles southwest of New Bedford, Massachusetts. There is an existing Federal navigation project at Sakonnet Harbor, which provides for a breakwater about 400 feet long in a northerly direction, a 400-foot extension in a northeasterly direction; removal of rock nearest the breakwater to a depth of 8 feet; dredging the harbor to a depth of 8 feet, to provide additional anchorage area. Total area available about 13 acres. The project was completed in 1957.

2. The principal navigation difficulty is exposure to wave attack in the anchorage from a northerly direction.

3. Improvement Considered. Consideration was given to the requests of local interests for modification of the existing project by construction of a rubble mound breakwater extending in a westerly direction from the shore adjacent to the entrance to the harbor in order to protect the harbor from waves entering it from a northerly direction.

4. Discussion. All possible locations, orientations, and lengths of breakwaters were studied and found to be not justified due to insufficient benefits and excessive costs. Sakonnet Harbor is limited by its size and shape to an area of only 13 acres available for open anchorage use by both commercial and recreational craft resulting in a severely overcrowded condition. As a result, the Division Engineer has concluded that there is need for additional breakwater protection at Sakonnet Harbor as indicated by damages experienced by the boats presently using the harbor. However, these damages are insufficient to warrant construction of a breakwater at this time. He further finds that expansion of harbor facilities are needed to relieve the overcrowded anchorage. The most practical solution is through development of marinas by local interests. Therefore, he has recommended that no modification of the existing Federal project at Sakonnet Harbor be made at this time.